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Two very brilliant meteors fell at 5.28 a. m., November 15, and their paths crossed each other. One came from the radiant and the other from below Leo and cut the trail of the first under Canes Venatici. The trails were 30 degrees long.

The hope was expressed that next year we would be favored with a shower more brilliant and comparable to the showers of 1833 and 1866.

F. L. TUFTS,  
Secretary.

#### TORREY BOTANICAL CLUB.

THE first paper on the scientific program on December 10, 1901, was by Professor L. M. Underwood on 'The Genus *Gleichenia*.' This was illustrated by specimens and sketches, showing the principal natural types. The paper will be published in full in an early number of the *Bulletin*.

Mrs. N. L. Britton presented 'Notes on Macoun's Recent Collections of Canadian Mosses,' speaking of collections made by Professor J. Macoun during the past summer in the lower peninsula of Ontario between Lake Erie and Lake Ontario. Special mention was made of *Seligeria campylopoda* Kindb., previously known only from Owen Sound, but now collected at Niagara Falls. This moss ordinarily grows in pockets in limestone rocks and being very small is easily overlooked. Mrs. Britton alluded also to the synonymy of *Polytrichum Ohioense* Ren. & Card. This species was distributed by Drummond in his *Musci Americani* as *Polytrichum pallidisetum* and is apparently the same as what was afterwards recognized in the *Manual of Lesquereux* and James as *Polytrichum formosum*, var. *pallidisetum*, but whether the original *Polytrichum pallidisetum* of Funk is identical remains to be determined.

Dr. P. A. Rydberg in 'A Review of a Recent Monograph of the Ranunculaceæ' discussed the work recently written by Dr. K. C. Davis.

The final paper was by Mr. S. H. Burnham and was entitled 'Notes on the Flora of the Lake George Region.' Mr. Burnham referred especially to *Bidens Beckii*, an aquatic plant

growing in five or six feet of water in muddy streams, and to his experiences in collecting it through the ice during the last week of November of the present year. He also alluded to the restriction of *Castalia tuberosa* to the streams flowing directly into Lake Champlain while *Castalia odorata* alone is found in the Lake George Basin.

MARSHALL A. HOWE,  
Secretary pro tem.

#### NORTHERN SECTION OF THE AMERICAN CHEMICAL SOCIETY.

THE regular monthly meeting of the Section was held on Tuesday evening, December 17, in the Kidder lecture room of the Massachusetts Institute of Technology. Professor C. F. Chandler, of Columbia University, addressed the Society on 'The Electro-chemical Industries at Niagara Falls.' After tracing the historical development of electro-chemistry, Professor Chandler proceeded to discuss the development of the Castner process for the manufacture of sodium, sodium hydroxide, peroxide and cyanide, and the utilization of the chlorine from the salt for the manufacture of bleaching powder. The Hall process for the manufacture of aluminium together with the electrolytic purification of bauxite was then discussed and illustrated by a large number of beautiful specimens. The preparation and applications of carborundum, graphite, phosphorus and calcium carbide were considered in detail and were used to illustrate the rapid development of the electro-chemical industries at Niagara Falls.

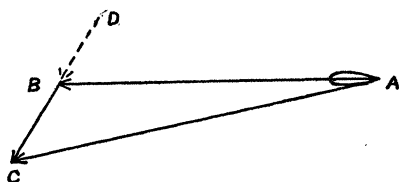
HENRY FAY,  
Secretary.

#### DISCUSSION AND CORRESPONDENCE.

##### THE MEASUREMENT OF WIND AT SEA.

TO THE EDITOR OF SCIENCE: In conducting at sea the meteorological observations with kites that have been described in SCIENCE, it was necessary to deduce from the observations on the ship and from the record of velocity at the kite the true direction and velocity of the wind at sea-level and in the upper air, respectively. Knowing the resultant direction

and velocity of the wind on the ship or at the kite, as well as the speed of the ship, the triangle of forces gave the true velocity of the wind and its direction relative to the course of



the vessel. For example, let  $AB$  be the wind due to the motion of the steamer in the opposite direction and let  $AC$  be the wind observed on board, the direction relative to the vessel being indicated by the drift of the smoke and its velocity measured by an anemometer. Then the third side,  $BC$ , of the triangle represents the direction of the natural wind and its velocity on the same scale. The problem is not new, for in Abbe's 'Treatise on Meteorological Apparatus and Methods' (*Report of the Chief Signal Officer for 1887, Part 2*), several graphical and mathematical solutions that have been proposed since 1847 are cited, and in the November *Pilot Chart* of the United States Hydrographic Office, a table shows the true direction of the wind with regard to the ship and its force, when there are known, the speed of the ship, the angle that the apparent wind makes with it (points off the bow) and the force of this wind.

It does not seem to be understood, however, that the same result may be reached without any measurement whatever of wind velocity or estimation of force by merely measuring, in addition, the angle that the true wind makes with the ship, which is easily done by watching from the weather side the wave-crests as they approach the vessel. If, in the figure,  $AB$  again represent in direction and speed the ship's wind, and  $AC$ , in direction only, the resultant wind, then by measuring the angle  $DBA$  that the true wind makes with the ship we have, as before, the third side,  $BC$ , of the triangle. The method fails when the wind is in line with the ship's course and becomes inaccurate when the angle between them is small. In other cases, since the speed

and course of the ship are always sufficiently known and the two angles  $BAC$  and  $DBA$  can be measured with precision, the method is better than the first because of the difficulty in measuring the resultant velocity, arising from the upward deflection of the wind on striking the ship. When steaming through calm air, experiments with Dines' portable pressure anemometer demonstrated that in few localities on board was the speed of the vessel indicated by the horizontal movement of the air, one such place being just aft of the bow. Elsewhere a less speed was usually recorded, though under the bridge the compressed vein of air flowed astern faster than the boat moved ahead. In view of this difficulty of measuring the apparent wind velocity on a moving vessel, any method of ascertaining the true velocity with considerable accuracy, without employing an anemometer, is desirable from a scientific as well as from a practical standpoint, and, therefore, the simple method last described, which may usually replace the other, is now published for the first time, so far as the writer is aware.

A. LAWRENCE ROTCH.

BLUE HILL METEOROLOGICAL  
OBSERVATORY, December 10, 1901.

#### THE ANDREW CARNEGIE RESEARCH SCHOLARSHIP.

A RESEARCH scholarship or scholarships, of such value as many appear expedient to the Council of the Iron and Steel Institute, from time to time founded by Mr. Andrew Carnegie (Vice-President), who has presented to the Iron and Steel Institute sixty-four one-thousand dollar Pittsburg, Bessemer and Lake Erie Railroad Company 5 per cent. Debenture bonds for the purpose, will be awarded annually, irrespective of sex or nationality, on the recommendation of the council of the institute. Candidates, who must be under thirty-five years of age, must apply, on a special form before the end of March to the secretary of the institute.

The object of this scheme of scholarships is not to facilitate ordinary collegiate studies, but to enable students, who have passed through college curriculum or have been trained in industrial establishments, to con-